Environmental Consultants

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SCS ENGINEERS

May 20, 1999
File No. 0185016.05

Mr. David R. Klunk
Director of Environmental Protection
City of Santa Fe Springs
Headquarters Fire Station
11300 Greenstone Avenue
Santa Fe Springs, California 90670-4619
Phone: (562) 944-9713
Fax: (562) 941-1817

SUBJECT: Analytical Results for Aboveground Storage Tank Closure, Angeles Chemical Company, 8915 Sorensen Avenue, Santa Fe Springs, California

Dear Mr. Klunk:

Per your letter dated March 29, 1999, to Mr. Jim Locke of Angeles Chemical Company (ACC), SCS Engineers (SCS) is submitting this letter-report presenting a summary of subsurface soil sampling activities and analytical results with respect to aboveground storage tank (AST) closure at the subject site (Figure 1). A workplan dated March 23,1999, was submitted to the Santa Fe Springs Fire Department (SFSFD) by EREMCO and subsequently approved.

On April 15, 1999, SCS performed subsurface soil sampling activities on the southwestern portion of the site where four former ASTs were located (Figure 2). A SFSFD Environmental Protection Inspector, Mr. Raul Diaz, was on site to observe soil sampling activities.

Subsurface soil samples were obtained from selected depths using a Geoprobe® direct-push rig provided by Global Probe, Inc. The Geoprobe® rig was equipped with a hydraulic hammer and a two-foot long, 1.5-inch diameter solid-spoon sampler. A pointed steel tip was fixed to the head of the solid-spoon sampler and driven to the desired depth on a steel rod. Samples were collected by retracting the drive tip through the center of the sampler with an inner rod, and hydraulically hammering the sampler an additional two feet.

Soil samples from each of the borings were recovered in 6-inch long, 1.25-inch diameter pre-cleaned brass sleeves which were placed inside the two-foot sampler. For each sample depth at all locations two 6-inch brass were removed from the bottom of the sampler and retained for subsequent laboratory analysis.

Immediately following soil sample collection, both ends of one sample sleeve were covered with a Teflon sheet and capped with plastic end caps. A label noting the date of collection, sample number, and project number was affixed to each sample.

Immediately following labeling, samples were placed in a chilled cooler for subsequent transport to the Advance Technology Laboratory (ATL), state-certified laboratory located in Signal Hill, California. Samples were tracked from the point of collection to the laboratory using standard chain-of-custody protocol.

Soil samples were collected at depths of 5 and 10 feet below ground surface (bgs) from each of the four borings (T-1, T-2, T-3, and T-4), located beneath the center of the former ASTs (Figure 2). A total of eight soil samples were submitted to the laboratory for analysis. Soil samples were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 Modified (gasoline and diesel), aromatic volatile hydrocarbons and other volatile organic compounds (VOCs) by EPA Method 8260.

Analytical results indicated no detectable concentrations of TPH in any of the eight samples. The VOCs listed in Table 1 were detected in concentrations ranging from 5.9 to 386 µg/kg. Table 1 presents a summary of VOC analytical results. Laboratory reports and chain-of-custody documents are attached.

Table 1: VOC Analytical Results (EPA Method 8260)

	Sample Number and Depth							
Analyte (µg/kg)	T-1@5'	T-1@10'	T-2@5'	T-2@10'	T-3@5'	T-3@10'	T-4@5'	T-4@10'
1,1-DCA	18	7.8	23	5.9	11	<5.0	9.7	<5.0
cis-1,2-DCE	386	98	329	101	182	16	119	10
Ethylbenzene	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
PCE	48	7.4	30	7.2	69	<5.0	221	<5.0
Toluene	<5.0	<5.0	<5.0	<5.0	9.3	<5.0	<5.0	<5.0
TCE	61	17	54	23	206	6.8	272	6.9
1,2,4-TMB	89	7.2	18	<5.0	7.4	<5.0	<5.0	<5.0
1,3,5-TMB	44	<5.0	13	<5.0	<5.0	<5.0	<5.0	<5.0
Xylenes (Total)	58	9.9	16	<5.0	7.7	<5.0	<5.0	<5.0

Notes: µg/kg = micrograms per kilogram; approximately equivalent to parts per billion (ppb).
"<" indicates sample concentration was below indicated detection limits
Compounds not listed were all below laboratory detection limits.
1,1-DCA = 1,1-Dichloroethane
cis-1,2-DCE = cis-1,2-Dichloroethene
PCE = Tetrachloroethene
TCE = Trichloroethene
1,2,4-TMB = 1,2,4-Trimethylbenzene
1,3,5-TMB = 1,3,5-Trimethylbenzene

As SFSFD is aware, the subject site is currently under the jurisdiction of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). Extensive site investigation has been conducted. A removal action workplan has been approved by DTSC requiring vapor extraction, which will remediate impacted soil in the area of the former ASTs. On behalf of ACC, SCS is requesting closure for these four former ASTs from SFSFD, with the knowledge that remediation of this area will be implemented under the oversight of DTSC. The case officer for DTSC is Mr. Shawn Haddad who can be reached at (818) 551-2962.

Please contact one of the undersigned if you have any questions.

Sincerely,

Darren R. Ness
Staff Scientist

Brian A. Watterson, R.G., R.E.A.
Project Manager
SCS ENGINEERS

Attachments

cc: Mr. Jim Locke, Angeles Chemical Company
Mr. Shawn Haddad, DTSC Region III
Mr. Raul Diaz, SFSFD

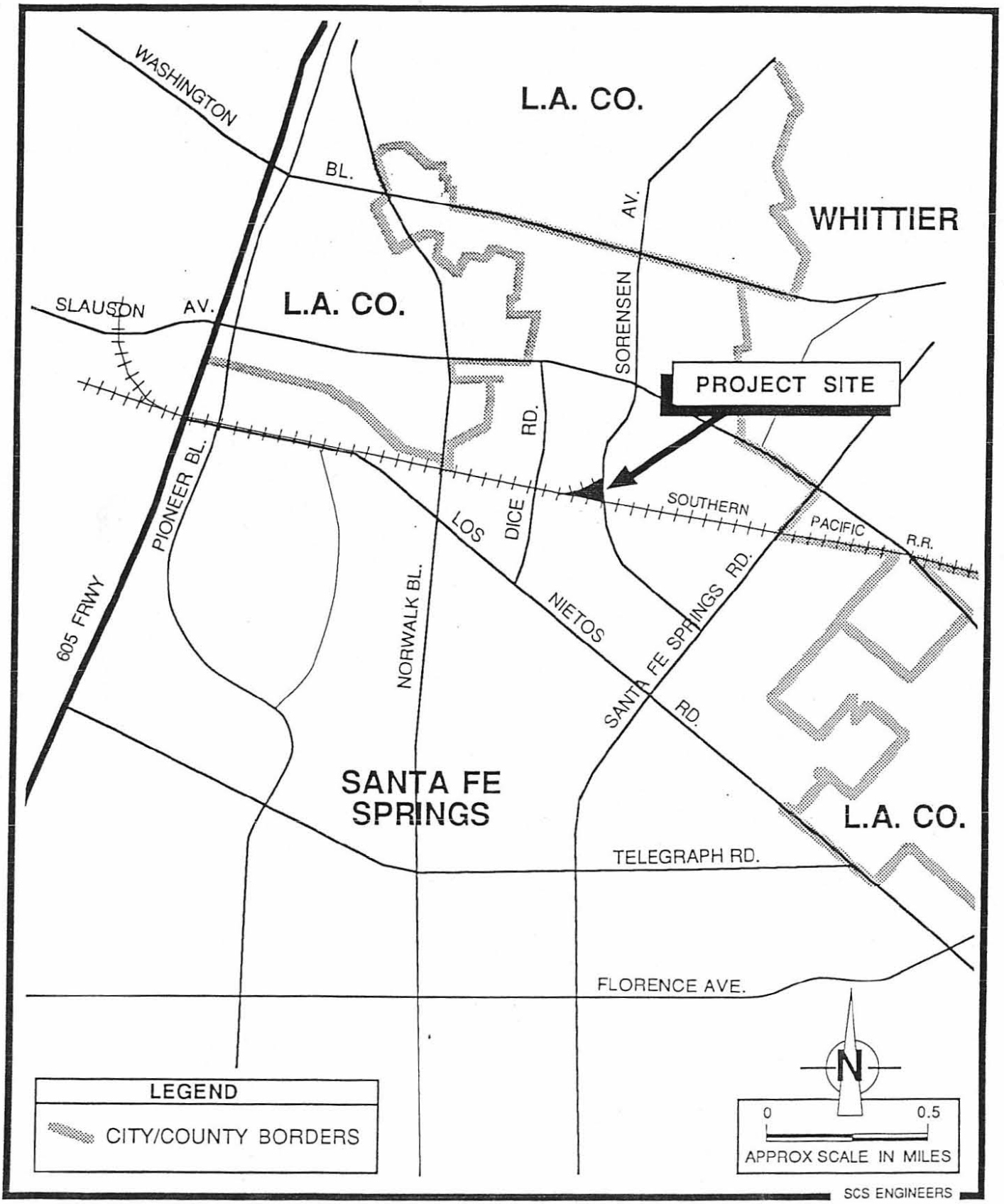

Figure 1. Map Showing Location of Angeles Chemical Project Site.

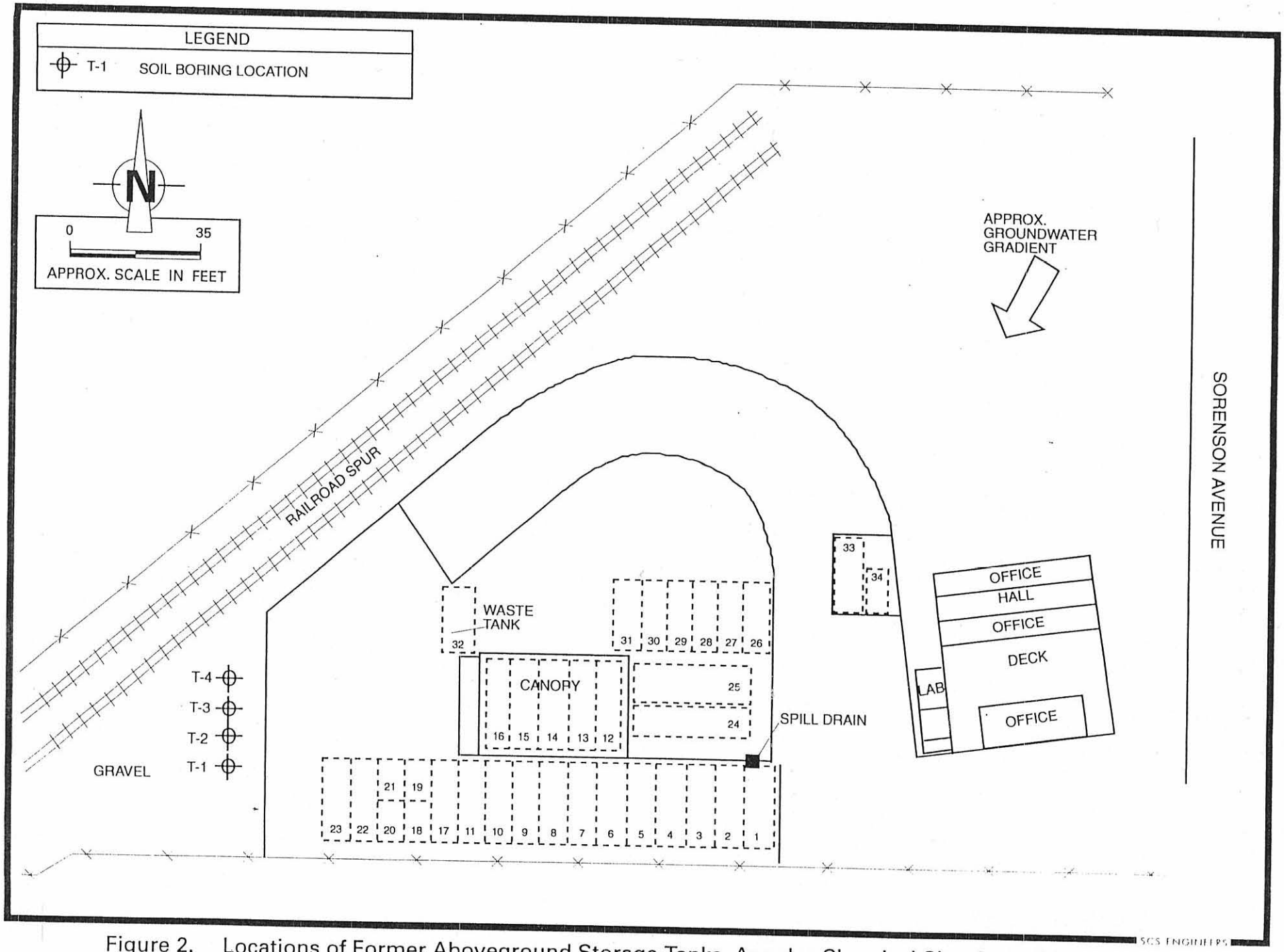

Figure 2. Locations of Former Aboveground Storage Tanks, Angeles Chemical Site, Santa Fe Springs, CA.

April 28, 1999 ELAP No.: 1838

SCS Engineers
3711 Long Beach Blvd. 9th Floor
Long Beach, CA 90807

ATTN: Brian Watterson

Client's Project: Angeles, 0185016.05
Lab No.: 34959-001/016

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (562) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Cheryl De Los Reyes
Technical Operations Manager
CDR/jh

Enclosures

This cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

Client's Project: Angeles, 0185016.05
Date Received: 04/15/99
Matrix: Soil
Units: µg/kg

EPA Method 8260

Lab No.:	Method Blank		34959-001		34959-003		34959-005		34959-007	
Client Sample I.D.:	--		T-1@5'		T-1@10'		T-2@5'		T-2@10'	
Date Sampled:	--		04/15/99		04/15/99		04/15/99		04/15/99	
QC Batch #:	P99VOCS067		P99VOCS067		P99VOCS067		P99VOCS067		P99VOCS067	
Date Analyzed:	04/16/99		04/16/99		04/16/99		04/16/99		04/16/99	
Analyst Initials:	SMC		SMC		SMC		SMC		SMC	
Dilution Factor:	1		1		1		1		1	
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Benzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromodichloromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromoform	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromomethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
n-Butylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
sec-Butylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
tert-Butylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Carbon tetrachloride	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chloroform	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chloromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
2-Chlorotoluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
4-Chlorotoluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Dibromochloromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2-Dibromo-3-chloropropan	10	10	ND	10	ND	10	ND	10	ND	10	ND
1,2-Dibromoethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Dibromomethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2-Dichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,3-Dichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,4-Dichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Dichlorodifluoromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1-Dichloroethane	5.0	5.0	ND	5.0	18	5.0	7.8	5.0	23	5.0	5.9
1,2-Dichloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1-Dichloroethene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
cis-1,2-Dichloroethene	5.0	5.0	ND	5.0	386	5.0	98	5.0	329	5.0	101

MDL = Method Detection Limit
ND = Not Detected (Below DLR).
DLR = MDL X Dilution Factor
NA = Not Analyzed

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

Client's Project: Angeles, 0185016.05
Date Received: 04/15/99
Matrix: Soil
Units: µg/kg

EPA Method 8260

Lab No.:		Method Blank		34959-001		34959-003		34959-005		34959-007	
Client Sample I.D.:		--		T-1@5'		T-1@10'		T-2@5'		T-2@10'	
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
trans-1,2-Dichloroethene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2-Dichloropropane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,3-Dichloropropane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
2,2-Dichloropropane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1-Dichloropropene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Ethylbenzene	5.0	5.0	ND	5.0	10	5.0	ND	5.0	ND	5.0	ND
Hexachlorobutadiene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Isopropylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
p-Isopropyltoluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Methylene Chloride	15	15	ND	15	ND	15	ND	15	ND	15	ND
Methyl tert-Butyl Ether	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Naphthalene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
n-Propylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Styrene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,1,2-Tetrachloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,2,2-Tetrachloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Tetrachloroethene	5.0	5.0	ND	5.0	48	5.0	7.4	5.0	30	5.0	7.2
Toluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2,3-Trichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2,4-Trichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,1-Trichloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,2-Trichloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Trichloroethene	5.0	5.0	ND	5.0	61	5.0	17	5.0	54	5.0	23
Trichlorofluoromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2,3-Trichloropropane	10	10	ND	10	ND	10	ND	10	ND	10	ND
1,2,4-Trimethylbenzene	5.0	5.0	ND	5.0	89	5.0	7.2	5.0	18	5.0	ND
1,3,5-Trimethylbenzene	5.0	5.0	ND	5.0	44	5.0	ND	5.0	13	5.0	ND
Vinyl Chloride	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Xylenes (Total)	5.0	5.0	ND	5.0	58	5.0	9.9	5.0	16	5.0	ND

MDL = Method Detection Limit
ND = Not Detected (Below DLR).
DLR = MDL X Dilution Factor
NA = Not Analyzed

Reviewed/Approved By: _____ Date 5/20/99
Val Mallari
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

Client's Project: Angeles, 0185016.05
Date Received: 04/15/99
Matrix: Soil
Units: µg/kg

EPA Method 8260

Lab No.:	34959-009		34959-011		34959-013		34959-015	
Client Sample I.D.:	T-3@5'		T-3@10'		T-4@5'		T-4@10'	
Date Sampled:	04/15/99		04/15/99		04/15/99		04/15/99	
QC Batch #:	P99VOCS067		P99VOCS067		P99VOCS067		P99VOCS067	
Date Analyzed:	04/16/99		04/16/99		04/16/99		04/16/99	
Analyst Initials:	SMC		SMC		SMC		SMC	
Dilution Factor:	1		1		1		1	
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Benzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromodichloromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromoform	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Bromomethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
n-Butylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
sec-Butylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
tert-Butylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Carbon tetrachloride	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chloroform	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Chloromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
2-Chlorotoluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
4-Chlorotoluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Dibromochloromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2-Dibromo-3-chloropropan	10	10	ND	10	ND	10	ND	10	ND
1,2-Dibromoethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Dibromomethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2-Dichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,3-Dichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,4-Dichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Dichlorodifluoromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1-Dichloroethane	5.0	5.0	11	5.0	ND	5.0	9.7	5.0	ND
1,2-Dichloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1-Dichloroethene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
cis-1,2-Dichloroethene	5.0	5.0	182	5.0	16	5.0	119	5.0	10

MDL = Method Detection Limit
ND = Not Detected (Below DLR).
DLR = MDL X Dilution Factor
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The cover letter is an integral part of this analytical report.

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Attn: Brian Watterson

Client's Project: Angeles, 0185016.05
Date Received: 04/15/99
Matrix: Soil
Units: µg/kg

EPA Method 8260

Lab No.:		34959-009		34959-011		34959-013		34959-015	
Client Sample I.D.:		T-3@5'		T-3@10'		T-4@5'		T-4@10'	
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results
trans-1,2-Dichloroethene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2-Dichloropropane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,3-Dichloropropane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
2,2-Dichloropropane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1-Dichloropropene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Ethylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Hexachlorobutadiene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Isopropylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
p-Isopropyltoluene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Methylene Chloride	15	15	ND	15	ND	15	ND	15	ND
Methyl tert-Butyl Ether	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Naphthalene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
n-Propylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Styrene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,1,2-Tetrachloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,2,2-Tetrachloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Tetrachloroethene	5.0	5.0	69	5.0	ND	5.0	221	5.0	ND
Toluene	5.0	5.0	9.3	5.0	ND	5.0	ND	5.0	ND
1,2,3-Trichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2,4-Trichlorobenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,1-Trichloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,1,2-Trichloroethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Trichloroethene	5.0	5.0	206	5.0	6.8	5.0	272	5.0	6.9
Trichlorofluoromethane	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
1,2,3-Trichloropropane	10	10	ND	10	ND	10	ND	10	ND
1,2,4-Trimethylbenzene	5.0	5.0	7.4	5.0	ND	5.0	ND	5.0	ND
1,3,5-Trimethylbenzene	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Vinyl Chloride	5.0	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Xylenes (Total)	5.0	5.0	7.7	5.0	ND	5.0	ND	5.0	ND

MDL = Method Detection Limit
ND = Not Detected (Below DLR).
DLR = MDL X Dilution Factor
NA = Not Analyzed

Reviewed/Approved By: _____ Date 4/29/99
Val Mallari
Department Supervisor

The cover letter is an integral part of this analytical report.

Spike Recov and RPD Summary Report ( )il(ug/Kg)

Method : C:\HPCHEM\1\METHODS\PVS0331.M (RTE Integrator)
Title : VOC 8240/8260B Advanced Technology Laboratory
Last Update : Thu Apr 15 09:17:46 1999
Response via : Initial Calibration

Non-Spiked Sample: 34959-01.D

	Spike Sample	Spike Duplicate Sample
File ID :	PMS0416A.D	PMD0416A.D
Sample :	34959-01 spike	34959-01 spike dup
Acq Time:	16 Apr 1999 3:24 pm	16 Apr 1999 3:51 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-dichloroethene	0.0	100	98	99	98	99	0	20	58-156
benzene	0.0	100	102	96	102	96	6	12	72-134
trichloroethene	61.3	100	162	142	101	81	22#	16	55-145
toluene	0.0	100	104	94	100	90	11	16	73-127
chlorobenzene	0.0	100	103	95	103	95	9	11	80-119

QCBATCH#P99VOCS067
= Otside limits due to matrix interference.

Reviewed/Approved By _____ Date: 4/19/99
Edgar Morrison
Volatile Section Supervisor

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: SCS Engineers
Attn: Brian Watterson

Client's Project: Angeles, 0185016.05
Date Received: 04/15/99
Matrix: Soil

METHOD 8015M (Gasoline)/EPA 8020

Lab No.:			Method Blank		34959-001		34959-003		34959-005		34959-007		34959-009		34959-011		34959-013		34959-015	
Client Sample I.D.:			----		T-1@5'		T-1@10'		T-2@5'		T-2@10'		T-3@5'		T-3@10'		T-4@5'		T-4@10'	
Date Sampled:			----		04/15/99		04/15/99		04/15/99		04/15/99		04/15/99		04/15/99		04/15/99		04/15/99	
QC Batch #:			I998G20S122		I998G20S122		I998G20S122		I998G20S122		I998G20S122		I998G20S122		I998G20S122		I998G20S122		I998G20S122	
Date Analyzed:			04/24/99		04/25/99		04/25/99		04/25/99		04/25/99		04/25/99		04/25/99		04/25/99		04/25/99	
Analyst Initials:			AK		AK		AK		AK		AK		AK		AK		AK		AK	
Dilution Factor:			1		1		1		1		1		1		1		1		1	
Analyte	MDL	Units	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
TPH (Gas)	1	mg/kg	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
Benzene	5	µg/kg	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Toluene	5	µg/kg	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Ethylbenzene	5	µg/kg	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Xylenes (total)	5	µg/kg	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND

Lab No.:																				
Client Sample I.D.:																				
Date Sampled:																				
QC Batch #:																				
Date Analyzed:																				
Analyst Initials:																				
Dilution Factor:																				
Analyte	MDL	Units	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
TPH (Gas)	1	mg/kg																		
Benzene	5	µg/kg																		
Toluene	5	µg/kg																		
Ethylbenzene	5	µg/kg																		
Xylenes (total)	5	µg/kg																		
MTBE	5	µg/kg																		

MDL = Method Detection Limit
ND = Not Detected. (Below DLR)

DLR = MDL X Dilution Factor
NA = Not Analyzed

Reviewed/Approved By: _____
Val Mallari, Department Supervisor

Date: 4/30/99

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report - SOIL

Method : C:\HPCHEM\1\METHODS\IS990423.M (RTE integrator)
Title : M8015GAS(Calibrated on 3/15/99)/ 8020(BTEX)
Last Update : Fri Apr 23 18:12:55 1999
Response via : Initial Calibration

Non-Spiked Sample: 35129-02.D

	Spike Sample	Spike Duplicate Sample
File ID :	IMS0424A.D	IMD0424A.D
Sample :	i998g20s122/	i998g20s122/
Acq Time:	25 Apr 1999 5:09 am	25 Apr 1999 5:33 am

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
Gasoline (mg/kg)	0.0	3	3	3	106	104	2	21	41-151
Benzene #2(ug/kg)	0.0	12	15	14	127	119	6	15	42-132
Toluene #2 (ug/kg)	0.0	156	188	185	121	119	2	15	42-132

QC BATCH #: I998G20S122

Reviewed and Approved by: _____ Date _____
Edgar Morrison,
Volatile Group Leader

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-001
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-1@5'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
<C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
>C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 4/28/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-003
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-1@10'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
<C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
>C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 4/28/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-005
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-2@5'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
<C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
>C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 5/20/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-007
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-2@10'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
<C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
>C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 4/29/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-009
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-3@5'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
<C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
>C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 4/28/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-011
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-3@10'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
< C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
> C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 4/28/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-013
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-4@5'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
< C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
> C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: 4/30/99
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Client: SCS Engineers
Attn: Brian Watterson

QC Batch #: L998015DS193
Lab No. : 34959-015
Date Sampled: 04/15/99
Date Received: 04/15/99
Date Extracted: 04/17/99
Date Analyzed: 04/27/99
Dilution Factor: 1

Client's Project: Angeles, 0185016.05

Matrix: Soil

Sample ID.: T-4@10'
Analyst Initials: JW

Hydrocarbon Chain Distribution

Hydrocarbon I.D.	% Weight	Results, mg/kg	Detection Limit, mg/kg
<C10	ND	ND	1.0
C10 - C12	ND	ND	10
C13 - C15	ND	ND	10
C16 - C22	ND	ND	10
C23 - C32	ND	ND	10
>C32	ND	ND	10

ND = Not Detected.

Reviewed/Approved By: _____ Date: _____
Lee Ingvaldson
Department Supervisor

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report (OIL (mg/kg)

Method : C:\HPCHEM\2\METHODS\DIESEL8.M (Chemstation Integrator)
Title : Advanced Technology Laboratories (DIESEL)
Last Update : Mon Apr 19 15:54:27 1999
Response via : Initial Calibration

Non-Spiked Sample: 34959-01.D

	Spike Sample	Spike Duplicate Sample
File ID :	LMS0427C.D	LMD0427C.D
Sample :	L998015DS193 34959-01 MS DSL	L998015DS193 34959-01 MSD DSL
Acq Time:	27 Apr 1999 11:25 pm	27 Apr 1999 11:54 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
DIESEL	107.8	1000	1034	978	93	87	6	23	40-140

QC Batch#:L998015DS193

Reviewed and Approved by: _____ Date: 4-28-99
Lee Ingvaldson
Organics Supervisor

CHAIN OF CUSTODY RECORD

Pg 1 of 2

Advanced Technology Laboratories
1510 E. 33rd Street
Signal Hill, CA 90807
(562) 989-4045 • FAX (562) 989-4040

FOR LABORATORY USE ONLY:

Batch #: _____ D.O. # _____
P.O.#: _____
Logged By: DR Date: 4-15 Time: 1340

Method of Transport: Walk-in ☒ Courier ☐ UPS ☐ FED. EXP. ☐ ATL ☐

Sample Condition Upon Receipt:
1. CHILLED Y☒ N☐ 4. SEALED Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☒ N☐
3. CONTAINER INTACT Y☒ N☐ 6. PRESERVED Y☐ N☐

Client: SCS ENGINEERS
Attn: BRIAN WATTERSON
Address: 3711 LONG BEACH BLVD., 9TH FLOOR
City LONG BEACH State CA Zip Code 90807
TEL: (562) 426-9544
FAX: (562) 427-0305

Project Name: AUGERS Project #: 08501G.05 Sampler: (Printed Name) DARREN NESS (Signature) D. P. Ness

Relinquished by: (Signature and Printed Name) D. P. Ness Date: 04-15-99 Time: 1155 Received by: (Signature and Printed Name) Brad Galvan Date: 4-15-99 Time: 1200
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

SHIP TO LAB:
(SUB CONTRACT) _____
TEST: _____
ATL #: _____
DATE: _____
CLIENT I.D. _____

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
DARREN NESS Date: 04/15/99
Print Name
D. P. Ness
Signature

Send Report To:
Attn: _____
Co: _____
Address _____
City _____ State _____ Zip _____

Special Instructions/Comments:
8015M - TO AT LEAST C_{40}

Unless otherwise requested, all samples will be disposed 45 days after receipt.

Sample Archive/Disposal:
☒ Laboratory Standard
☐ Other _____
☐ Return To: _____
* $10.00 FEE PER HAZARDOUS SAMPLE DISPOSAL.

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D.	Date	Time	601/8010 (Halogenated Volatiles-GC)	602/8020/BTEX (Aromatic Volatiles-GC)	608/8080 (Pesticides/PCB-GC)	624/8240 (Volatiles-GC/MS)	8260 (Volatiles-GC/MS) + TMBE	625/8270 (BNA-GC/MS)	8015M TPHG/BTEX(COMBINATION)	8015M TPHD (Diesel-GC)	418.1 (TPH-IR)	Metals-Total (CAC-6010/7000)	SOLID • SOIL • SLUDGE	OIL • SOLVENT • LIQUID	WATER • WASTEWATER	DRINKING WATER	AIR	WIPE • FILTER	OTHER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	34959-001	T-1 @ 5'	4/15/99	0843				X		X	X											E	1	T	N	
	002	T-1 @ 5.5' - ARCHIVE	4/15/99	0843																						ARCH.
	003	T-1 @ 10'	4/15/99	0850				X		X	X											E	1	T	N	
	004	T-1 @ 10.5' - ARCHIVE	4/15/99	0850																						ARCHIVE
	005	T-2 @ 5'	4/15/99	0855				X		X	X											E	1	T	N	
	006	T-2 @ 5.5' - ARCHIVE	4/15/99	0855																						ARCHIVE
	007	T-2 @ 10'	4/15/99	0903				X		X	X											E	1	T	N	
	008	T-2 @ 10.5' - ARCHIVE	4/15/99	0903																						ARCHIVE
	009	T-3 @ 5'	4/15/99	0908				X		X	X											E	1	T	N	
	010	T-3 @ 5.5' - ARCHIVE	4/15/99	0905																						ARCHIVE

CIRCLE APPROPRIATE MATRIX

QA/QC: RTNE ☐ RWQCB ☐ WIP ☐ NAVY ☐ CT ☐ OTHER _____

• TAT starts 8 a.m. following day if samples received after 5 p.m.

TAT: A= Overnight ≤ 24 hr B= Emergency Next workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=Zn(AC)$_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report Yellow to folder Pink to submitter

CHAIN OF CUSTODY RECORD

Pg 2 of 2

Advanced Technology Laboratories
1510 E. 33rd Street
Signal Hill, CA 90807
(562) 989-4045 • FAX (562) 989-4040

FOR LABORATORY USE ONLY:

Batch #: _____ D.O. # _____

P.O.#: _____

Logged By: _____ Date: 4-15 Time: 1340

Method of Transport: Walk-in [X] Courier [ ] UPS [ ] FED. EXP. [ ] ATL [ ]

Sample Condition Upon Receipt:
1. CHILLED Y[X] N[ ] 4. SEALED Y[ ] N[X]
2. HEADSPACE (VOA) Y[ ] N[ ] 5. # OF SPLS MATCH COC Y[X] N[ ]
3. CONTAINER INTACT Y[X] N[ ] 6. PRESERVED Y[ ] N[X]

Client: SCS ENGINEERS
Attn: BRIAN WATERSON
Address: 3711 LONG BEACH BLVD, 7TH FLOOR
City LONG BEACH State CA Zip Code 90807
TEL: (562) 426-9544
FAX: (562) 427-6805

Project Name: ANGELES Project #: 01850160.05 Sampler: (Printed Name) DARREN NESS (Signature)

Relinquished by: (Signature and Printed Name) D — P. Ness Date: 4/15/99 Time: 1155 Received by: (Signature and Printed Name) Diane Galvan Date: 4.15.99 Time: 1200

Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

SHIP TO LAB: (SUB CONTRACT)
TEST:
ATL #:
DATE:
CLIENT I.D.

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: DARREN NESS Date: 04/15/99
Print Name
D — P. Ness
Signature

Send Report To:
Attn:
Co:
Address
City State Zip

Special Instructions/Comments:
8015M - TO AT LEAST C40

Unless otherwise requested, all samples will be disposed 45 days after receipt.

Sample Archive/Disposal:
[X] Laboratory Standard
[ ] Other
[ ] Return To:
* $10.00 FEE PER HAZARDOUS SAMPLE DISPOSAL.

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D.	Date	Time	601/8010 (Halogenated Volatiles-GC)	602/8020/BTEX (Aromatic Volatiles-GC)	608/8080 (Pesticides/PCB-GC)	624/8240 (Volatiles-GC/MS)	8260 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	8015M TPHG/BTEX(COMBINATION)	8015M TPHD (Diesel-GC)	418.1 (TPH-IR)	Metals-Total (CAC-6010/7000)	CIRCLE APPROPRIATE MATRIX: SOLID • SOIL • SLUDGE	OIL • SOLVENT • LIQUID	WATER • WASTEWATER	DRINKING WATER	AIR	WIPE • FILTER	OTHER	TAT	Container(s) #	Container(s) Type	PRESERVATION	QA/QC / REMARKS
	34959-011	T-3 @ 10'	4/15/99	0915				X		X	X											E	1	T M		
	012	T-3 @ 10.5' - ARCHIVE	4/15/99	0915																						ARCH.
	013	T-4 @ 5'	4/15/99	0920				X		X	X											E	1	T M		
	014	T-4 @ 5.5' - ARCHIVE	4/15/99	0922																						ARCHIVE
	015	T-4 @ 10'	4/15/99	0928				X		X	X											E	1	T M		
	016	T-4 @ 10.5' - ARCHIVE	4/15/99	0928																						ARCHIVE

• TAT starts 8 a.m. following day if samples received after 5 p.m.

TAT: A= Overnight ≤ 24 hr B= Emergency Next workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=Zn(AC)$_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report Yellow to folder Pink to submitter